

SERVICE MANUAL

STEREO TURNTABLE



TP 250



SPECIFICATIONS

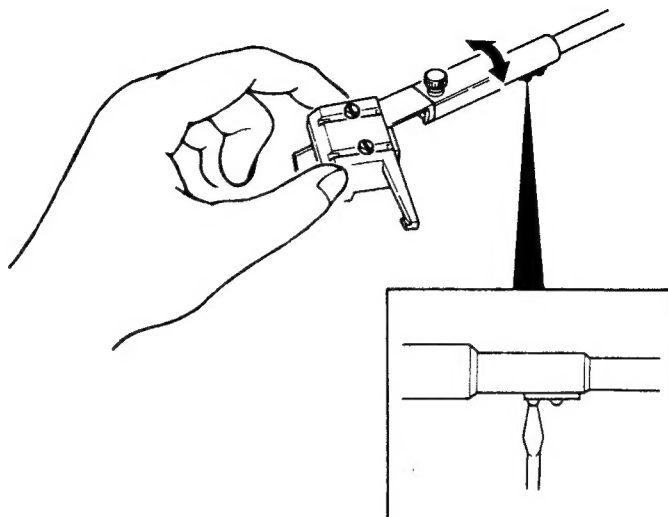
Motor	DC servo motor	Stylus	0.6 mil diamond stylus No. ATN3601
Drive system	Belt drive	Stylus pressure	1.5 – 2.5 g
Speed	33-1/3 and 45 rpm	Frequency response	20 – 20,000 Hz
Wow and flutter	0.05% WRMS	Channel separation	20 dB
Rumble	–70 dB	Power source	AC: 220V, 50Hz
Turntable platter	306 mm (12")	Power consumption	3.5 W
Tone arm	Static-balance type	Dimensions (Approx.)	420(W) x 370(D) x 126(H) mm (16-9/16" x 14-9/16" x 5")
Tracking error	±1.5°	Weight (Approx.)	3.8 kg (8 lbs. 6 ozs.)
Overhang	15 mm		
Cartridge	Magnetic stereo cartridge: VM type No. AT3601		

*Specifications and design are subject to change without notice.

ADJUSTMENT

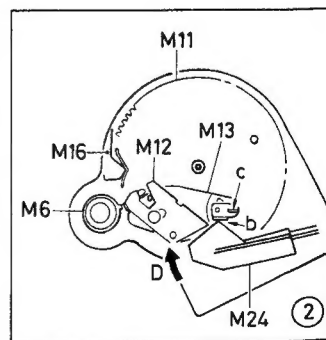
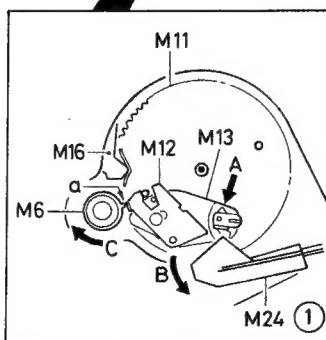
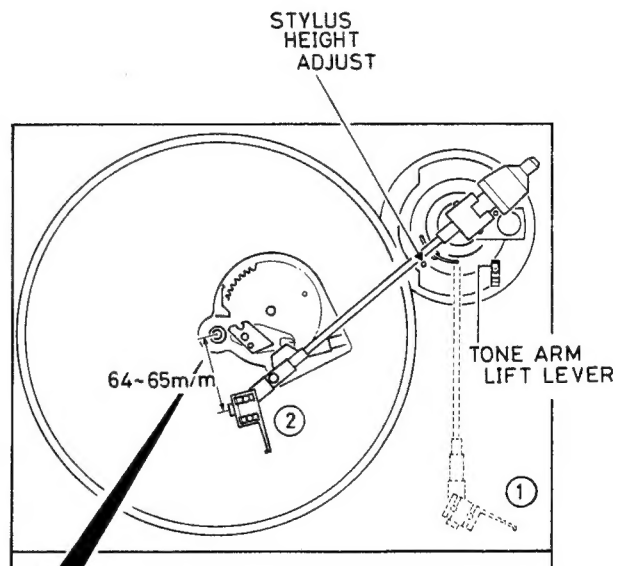
ADJUSTMENT OF HEADSHELL

The headshell attached to the tonearm should not be inclined either to the right or to the left. If necessary, loosen the two screws on the bottom of the tubular arm and adjust the headshell. Be sure that the stylus is normal to the record surface.



ADJUSTMENT OF AUTO-RETURN

Remove the turntable to set the tone arm in the reset position (1). Under this state, move the gear so that the tip of lever M16 intermeshes with the withdrawn part of cam for main gear. Besides, lower trip lever M13 and trip lever M24 pushed toward the arrow marks A and B, respectively. Turn pipe assy. M6 toward the arrow mark C to set so that the convex part of pinion and the tip of claw for the engagement lever M12 contact each other (arrow mark a). Next, move the tone arm (toward arrow mark D). When the distance between the center shaft of turntable and the needle tip becomes 64 thru 65 mm (2), insert a blade screwdriver into part C, and adjust by turning it clockwise or counterclockwise so that the tip of trip lever M24 begins to contact with lower trip lever M13 (arrow mark b). Finally put on the turntable, and check the performance of auto-return.

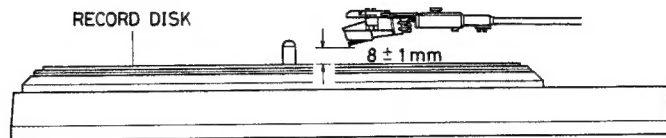


ADJUSTMENT

ADJUSTMENT OF STYLUS HEIGHT

Setting the record disk in place, raise the tonearm lift lever.

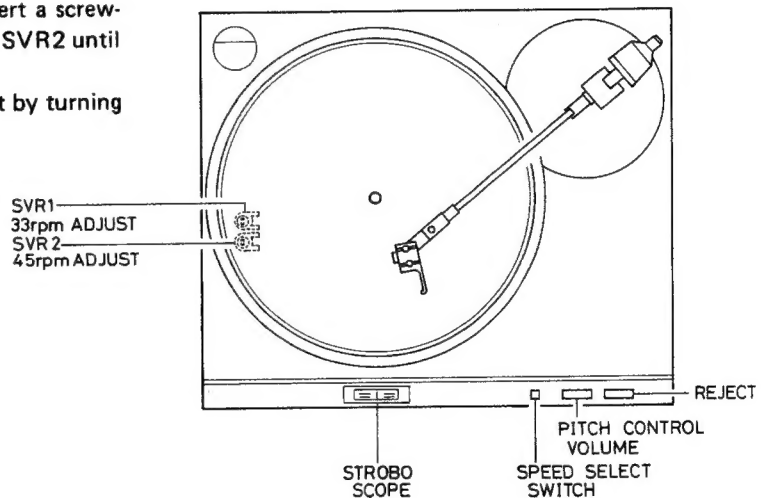
Bring the tonearm to above the disk, and insert a screwdriver into the "stylus height adjust" hole (see drawing for ADJUSTMENT OF AUTO-RETURN) and turn it right or left until the distance between the disk and stylus becomes 8 ± 1 mm.



ADJUSTMENT OF TURNTABLE SPEED

Setting the pitch control in the middle position, place the speed select switch in the 45 rpm position. Insert a screwdriver from the bottom of deck panel and turn SVR2 until the stroboscope pattern appears dead.

Similarly, change to 33 rpm position, and adjust by turning SVR1.

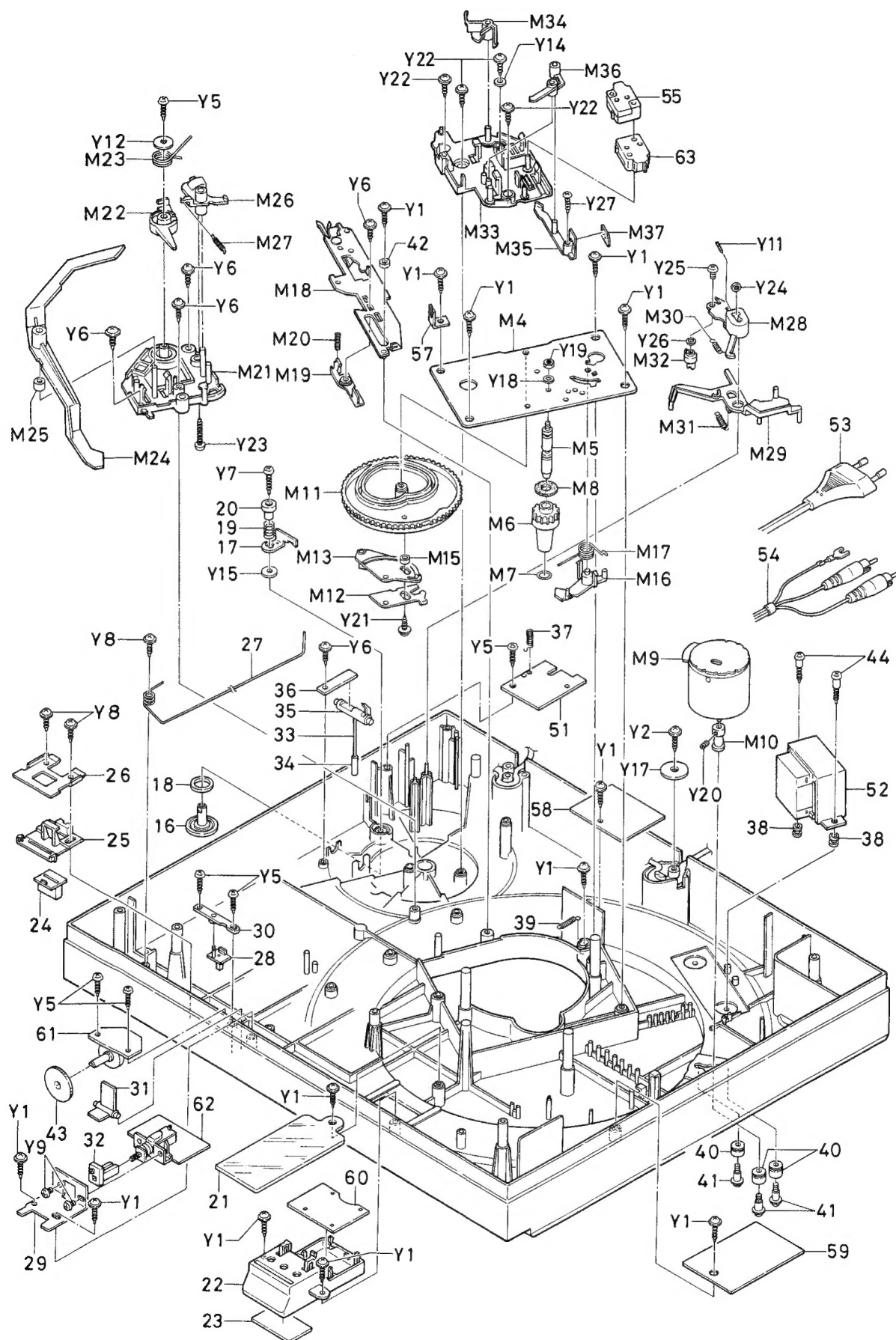




PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
PACKING & ACCESSORIES				FIXING PARTS			
	141-6-133T-47901	Individual Carbon	1	Y 1		Pan Hd. Tapping Screw w/washer 3 x 10	27
	141-6-144T-85500	Foam Plastic Case, Right	1	Y 2		Pan Hd. Tapping Screw w/washer 3 x 12	5
	141-6-144T-85600	Foam Plastic Case, Left	1	Y 3		Pan Hd. Tapping Screw 2.6 x 12	1
	141-6-317T-41900	PAD, Top	1	Y 4		Pan Hd. Tapping Screw 2.6 x 6	5
	141-6-317T-06700	PAD, Turntable	1	Y 5		Pan Hd. Tapping Screw 3 x 8	1
	141-6-410T-95201	Instruction Manual	1	Y 6		Pan Hd. Tapping Screw w/washer 3 x 6	5
	141-6-231T-15250	Inner Polye Cover, Cord	1	Y 7		Pan Hd. Tapping Screw 3 x 14	1
	141-6-231T-10100	Inner Polye Cover, Cartridge	4	Y 8		Pan Hd. Tapping Screw w/washer 3 x 14	3
	141-6-231T-35400	Inner Polye Cover, Turntable	1	Y 9		Pan Hd. Screw w/spring washer 3 x 6	2
	141-2-135T-87001	Cover	1	Y10		Square Nut 4mm	1
	141-6-235T-60500	Inner Polye Lamina Cover, Set	1	Y11		Hexagon Socket Set Screw 4 x 6	2
	141-6-317T-69500	PAD	1	Y12		Washer 3 x 13 x 1t	9
CABINET & CHASSIS				Y13		Washer 6 x 13 x 1t	4
1	141-0-121T-18706	Deck Panel Ass'y	1	Y14		Washer 5 x 10 x 1t	1
2	141-0-194T-01702	Dust Cover Ass'y	1	Y15		Washer 7.2 x 11 x 0.13t	1
3	141-2-125T-30203	Bottom Lid	1	Y16		Washer, 3.1 x 4.5 x 0.25t Nylon	4
4	141-0-174T-11900	Stand Ass'y	4	Y17	123-2-453R-10500	Plastic Washer	1
5	141-2-445T-29000	Rubber Cushion	4	Y18		Spring Washer 4 x 7.6 x 1t	1
6	141-2-118T-02800	Turntable	1	Y19		Hexagon Nu 4mm	1
7	141-2-247T-09601	Sheet	1	Y20		Set Screw 2 x 4	1
8	141-2-873T-00900	Rest	1	Y21		Pan Hd. Tapping Screw w/washer 2.6 x 8	1
9	141-2-873T-00700	Rest	1	Y22		Pan Hd. Tapping Screw w/washer 3 x 8	1
10	141-2-352T-52500	Spacer	2	Y23		Pan Hd. Tapping Screw 3 x 18	1
11	141-2-445T-26600	Rubber Cushion	1	Y24		Hexagon Nut 4mm	1
12	141-2-251T-07200	Hinge	2	Y25		Bind Hd. Forming Screw	1
13	141-2-122T-49800	Front Panel	1	Y26		Washer 4.5 x 7 x 0.25t	1
14	141-2-247T-20200	Sheet	1	Y27		Binding Head 2 Taping Screw, 2.6 x 10 mm	1
15	141-2-447T-00801	Cushion	2	ELECTRICAL PARTS			
16	141-2-163T-85100	Rotary Knob	1	51	4-280T-02100	PC BOARD, Junction	1
17	141-2-742T-08901	Lever	1	52	4-300T-69600	Power Trans	1
18	141-2-246T-95400	Sheet	1	53	4-243T-84973	Power Cord	1
19	141-2-855T-86000	Spring Coil	1	54	4-243T-20800	Lead Cord, Output	1
20	141-2-683T-26300	Ring	1	55	4-231T-61900	Switch (S2)	1
21	141-2-131T-42200	Clear Window	1		141-2-464T-20600	Fixer	10
22	141-2-210T-49900	Bracket	1	57	141-2-382T-07000	Terminal	1
23	141-2-863T-01300	Mirror	1	63	4-231T-61972	Switch (S3)	1
24	141-2-161T-98402	Push Button, Reject	1	POWER AC PCB ASS'Y			
25	141-2-210T-31500	Bracket, Reject	1	58	141-4-280T-01600	PCB Ass'y Power AC	1
26	141-2-352T-60200	Spacer, Reject	1	R2		FP-Carbon P 6.8K ±5% 1/2W	1
27	141-2-852T-80000	Spring wire, Reject	1	C6	4-223T-12100	±5% 1/2W Capacitor 0.01mF	1
28	141-2-160T-30901	Push Button, 33/45	1		141-2-382T-18900	Terminal	2
29	141-2-310T-89600	Bracket, 33/45	1	POWER DC PCB ASS'Y			
30	141-2-210T-50000	Bracket, 33/45	1	59	141-4-280T-01700	PCB Ass'y Power DC	1
31	141-2-210T-50100	Bracket, 33/45	1	SVR1,2,	4-222T-71173	Semifixed Variable Resistor 2K ohm	2
32	141-2-210T-49800	Bracket, 33/45	1	D1,2,3,		Diode DS135 E	4
33	141-2-742T-67100	Lever, Rafter	1	4			
34	141-2-156T-30400	Knob, Rafter	1	D5		Zener Diode GZA13X	1
35	141-2-671T-06300	Cum, Rafter	1				
36	141-2-853T-71500	Spring Plate, Rafter	1				
37	141-2-855T-82000	Spring Coil	1				
38	141-2-445T-05001	Cushion	2				
39	141-2-855T-87500	Spring Coil	1				
40	141-2-445T-28600	Rubber Cushion	3				
41	141-2-421T-38800	Special Screw	3				
42	141-2-461T-48400	Pipe	1				
43	141-2-163T-80632	Rotary Knob	1				
44	141-2-421T-33700	Special Screw	2				

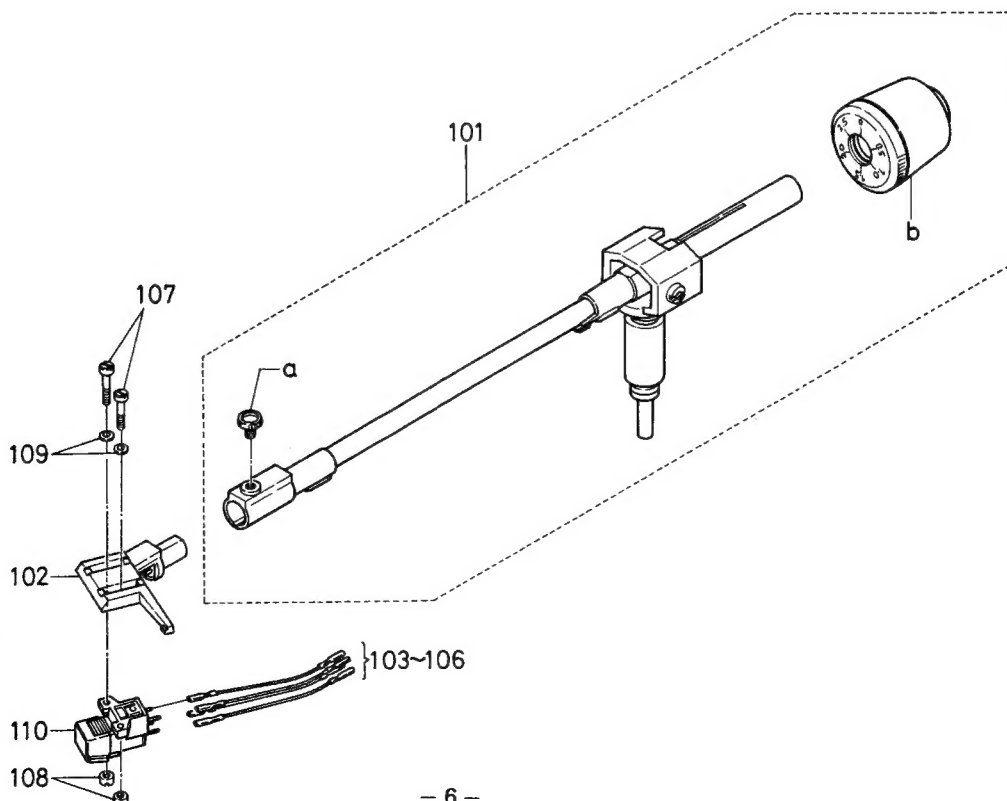
MECHANISM EXPLODED VIEW



PARTS LIST

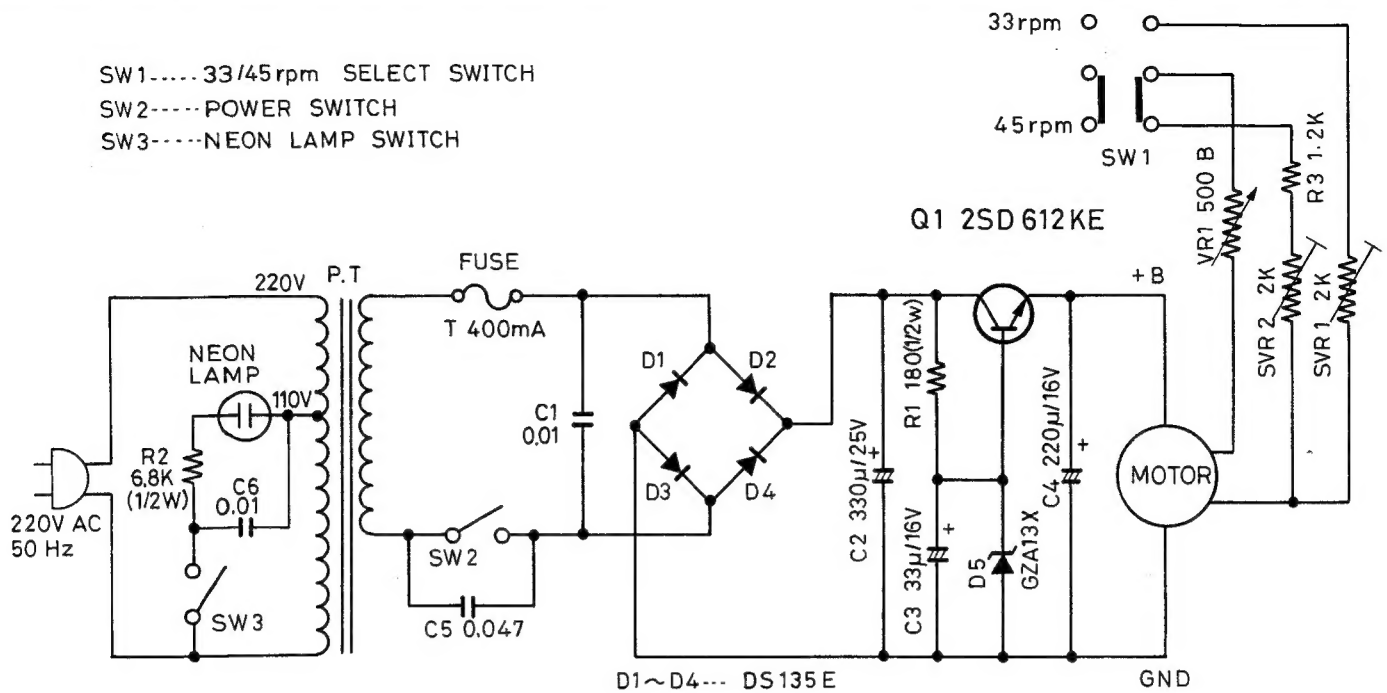
Ref.No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
POWER DC PCB ASS'Y				107	141-2-421T-23705	Special Screw	2
Q1	4-234T-01771 141-2-381T-04200	Transistor 2SD612K	1	108	141-2-417T-18100	Stud Nut	2
		Fuse 400mA	1	109	141-2-453T-32200	Washer	2
		Bracket Fuse	2	110	4-157T-03801	Cartridge Assy	1
					4-156T-03300	Stylus	1
				MECHANISM (PM-250)			
R1		RESISTORS		M 1	141-2-561T-04201	Flat Belt	1
R3		Carbon 180 ohm $\pm 5\%$ 1/2W	1	M 2	141-0-872T-00730	Lifter Ass'y	1
		Carbon 1.2K ohm $\pm 5\%$ 1/4W	1	M 3	141-2-855T-81600	Spring Coil	1
				M 4	141-0-351T-54800	Bracket MTG Assy	1
				M 5	141-2-754T-45500	Shaft	1
C1		CAPACITORS		M 6	141-0-461T-48700	Pipe Ass'y	1
C2		Ceramic 0.01 μ F +80-20% 50V	1	M 7	141-2-852T-64600	Spring Wire	1
C3		Electrolytic 330 μ F 25V	1	M 8	141-2-457T-44100	Special Washer	1
C4		Electrolytic 33 μ F 16V	1	M 9	4-527T-15800	Motor	1
C5		Electrolytic 220 μ F 16V	1	M10	141-2-661T-76900	Pulley, Motor	1
		Mylar 0.047 μ F 50V $\pm 20\%$	1	M11	141-2-581T-21600	Gear	1
LAMP PCB ASS'Y				M12	141-2-742T-68500	Lever	1
60	141-4-280T-01800	PCB Ass'y Lamp	1	M13	141-0-742T-88400	Lever Ass'y	1
	4-612T-07071	Lamp	1	M15	141-2-461T-42800	Pipe	1
VOLUME PCB ASS'Y				M16	141-2-742T-68700	Lever	1
61	141-4-280T-01900	PCB Ass'y Volume	1	M17	141-2-852T-70501	Spring Wire	1
VR1	4-222T-96100	Variable Resistor	1	M18	141-0-731T-93601	Slide Ass'y	1
SWITCH PCB ASS'Y				M19	141-2-742T-72200	Lever	1
62	141-4-280T-02000	PCB Ass'y Switch	1	M20	141-2-855T-84900	Spring Coil	1
S1	4-238T-69300	Switch	1	M21	141-2-210T-32700	Bracket	1
ARM				M22	141-2-742T-68400	Lever	1
101	141-0-743T-07104	ARM Ass'y	1	M23	141-2-852T-70600	Spring Wire	1
a	141-2-155T-06400	Ring Knob	1	M24	141-2-742T-87500	Lever	1
b	141-0-687T-02600	Weight Ass'y	1	M25	141-2-683T-40000	Ring	1
102	141-2-286T-01300	Head Shell	1	M26	141-2-742T-68800	Lever	1
103	4-243T-18200	Lead Cord, Left H	1	M27	141-2-855T-87500	Spring Coil	1
104	4-243T-18271	Lead Cord, Left E	1	M28	141-2-742T-71700	Lever	1
105	4-243T-18272	Lead Cord, Right H	1	M29	141-2-742T-71800	Lever	1
106	4-243T-18273	Lead Cord, Right E	1	M30	141-2-855T-55000	Spring Coil	1
				M31	141-2-855T-52700	Spring Coil	1
				M32	141-2-754T-06800	Shaft	1
				M33	141-2-210T-34800	Bracket	1
				M34	141-2-742T-71200	Lever	1
				M35	141-2-742T-71300	Lever	1
				M36	141-2-742T-71400	Lever	1
				M37	141-2-247T-22200	Sheet	1

ARM EXPLODED VIEW

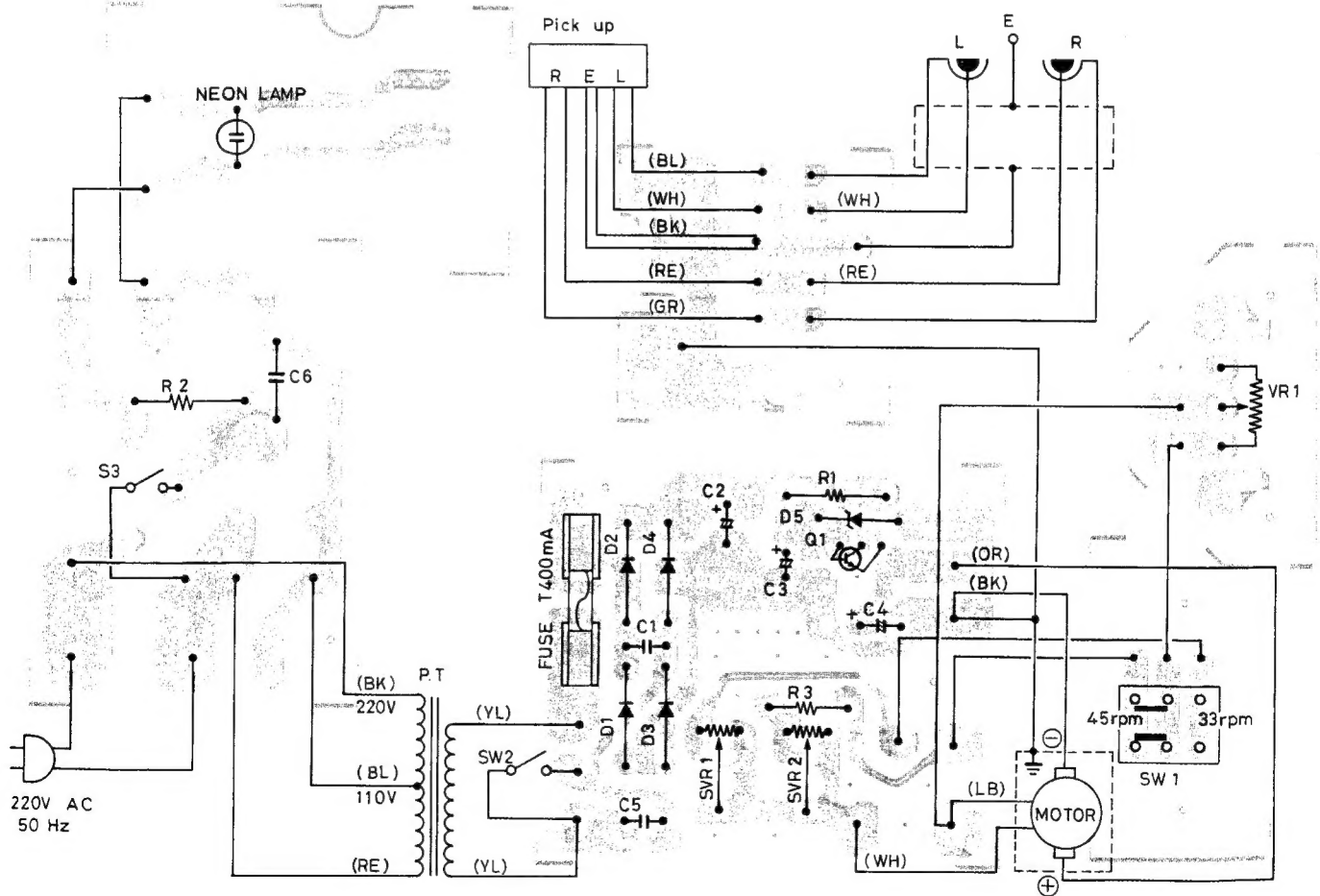


SCHEMATIC DIAGRAM

SW1.....33/45rpm SELECT SWITCH
SW2-----POWER SWITCH
SW3-----NEON LAMP SWITCH



WIRING DIAGRAM



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July./'83/2200 SI Printed in Japan